

IN THE CLAIMS

Please cancel Claim 66 without prejudice, amend Claims 12, 21, 23-24, 37, 50, 58, 61, and 65, and add new Claims 70-72 as follows:

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1. - 11. (Cancelled)

12. (Currently amended) A method of developing the specific protocol useful for delivery of content from a first node of a network to a second node thereof via a server entity of said first node, the method comprising:

10 developing a first component adapted to communicate between said first and second nodes;

developing a second component adapted to process the content delivered to said second node;

15 developing a third component adapted to cooperate with at least one of said first and second components to enable a user to control functions of the playback of said content that are specific to said protocol;

assembling said first, second and third components into one or more applications ~~configured to utilize said components~~; and

20 providing said one or more applications to said second node via at least one multiplex transport stream;

wherein said one or more applications are subsequently downloaded to one or more CPE configured to launch said one or more applications, thereby enabling one or more second applications within said CPE to make use of individual ones of said first, second and third components.

25 13. (Previously presented) The method of Claim 12, wherein said cooperation with at least one of said first and second components comprises accessing said first component to cause at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

30 14. (Previously presented) The method of Claim 12, wherein said act of developing said first component comprises developing a Java DataSource.

15. (Previously presented) The method of Claim 14, wherein said act of developing said second component comprises developing a Java MediaHandler.

16. (Previously presented) The method of Claim 15, wherein said act of developing said third component comprises developing a controller adapted to access said first component to cause at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

17. (Previously presented) The method of Claim 14, wherein said act of developing a first component comprises developing a DataSource component further adapted to setup a session and handshake or negotiate conditional access parameters.

18. (Previously presented) The method of Claim 14, wherein said act of developing a first component comprises developing a DataSource component further adapted to specify the channel on which said content will be delivered.

19. (Previously presented) The method of Claim 12, wherein said act of developing a first component comprises adapting said first component to provide messaging in support of a plurality of functional modes in cooperation with said third component, said third component being adapted to provide said plurality of functional modes.

20. (Previously presented) The method of Claim 12, wherein said act of developing a second component further comprises developing a player component adapted for implementing said second component.

21. (Currently amended) Consumer premises equipment (CPE) adapted for operation within a content-based network, said CPE comprising at least one software application running on a processor thereof and adapted for providing on-demand services to at least one user using at least one network-specific protocol, said at least one application comprising:

a first software component adapted to communicate between said CPE and another entity of said network;

a second software component adapted to process the content delivered to said CPE; and  
a third software component adapted to cause at least one message corresponding to at least one function specific to said protocol to be sent to said entity of said network;

wherein said first, second, and third software components are selected from among a plurality of sets of components provided to said CPE, said sets of components each being

~~developed by a head-end entity of said content based network and provided to said CPE specific~~  
to a different protocol, said CPE being configured to assemble said first, second, and third  
software components into said at least one application having an appropriate protocol via at  
least an editor application.

5           22.     (Previously presented) The CPE of Claim 21, wherein said CPE comprises a  
DSTB with Java-based middleware, and at least one of said first, second and third components  
of said at least one software application comprises at least one class and at least one interface  
disposed within the application directory hierarchy.

10           23.     (Currently amended) The CPE of Claim 22, wherein said CPE is adapted to:  
receive said at least one application over said network; and  
subsequent to said receipt, launch said at least one application to configure at least one  
path to ~~said~~ at least one of said sets of components.

15           24.     (Currently amended) The CPE of Claim 23, wherein said CPE further comprises  
a plurality of applications, said plurality of other applications being enabled to access ~~said~~ at  
least one of said sets of components via at least one of said at least one configured paths.

25. - 33. (Cancelled)

20           34.     (Previously presented) A head-end apparatus adapted for providing a network-  
specific on-demand application to CPE of said network, the apparatus comprising:  
at least one computer; and  
at least one computer program adapted to develop a specific protocol useful in  
implementing said on-demand application according to the method comprising:  
developing a set of first components adapted to communicate between said head-  
end and said CPE, said communication comprising:  
establishing a communications session between said head-end and said  
25           CPE;  
specifying to said CPE a channel on which on-demand content may be  
accessed by said CPE; and  
sending or receiving at least one message regarding functional modes;  
developing a set of second components adapted to process said on-demand  
30           content delivered to said CPE; and

developing a set of third components adapted to cooperate with at least one of said first and second components to control said functional modes specific to said on-demand application;

5 wherein each component of said set of first components, said set of second components, and said set of third components is associated with different multiple systems operator (MSO) environments; and

10 wherein, in response to a request for a particular application within a given MSO network, assembling and delivering individual ones of said set of first components, said set of second components, and said set of third components associated with said given MSO.

35. (Previously presented) The CPE of Claim 21, wherein said CPE is further adapted to:

15 receive said at least one application;  
store said at least one application within a storage device of said CPE; and  
run said application to configure said CPE according to a network-specific protocol implemented by said at least one application..

20 36. (Previously presented) The CPE of Claim 21, wherein said at least one application comprises an application configured with a network-specific protocol extension and wherein said CPE is further adapted to selectively allow a plurality of applications resident on said CPE to access said extension.

25 37. (Currently amended) A storage apparatus comprising a computer readable medium, said medium comprising at least one computer program having a plurality of instructions which, when executed by a computer, implement a pre-existing and network-specific protocol having at least one extension to the capabilities thereof, the at least one computer program comprising:

a first module for communication between a first and second node of said network;  
a second module for processing content delivered to said second node of said network;  
and

30 a third module for controlling at least one of said act of communicating and said act of processing, said third module being adapted to understand said extension, said act of controlling

enabling said content to be presented according to one or more requested functional modes available to said network-specific protocol based at least in part on said extension.

38. (Previously presented) The apparatus of Claim 37, wherein said controlling comprises causing at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

39. (Previously presented) The apparatus of Claim 37, wherein said communication between said first and second node of said network comprises utilizing a Java DataSource.

40. (Previously presented) The apparatus of Claim 39, wherein said processing content delivered to said second node comprises utilizing a Java MediaHandler.

41. (Previously presented) The apparatus of Claim 40, wherein said controlling comprises utilizing a controller adapted to cause at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

42. (Previously presented) The apparatus of Claim 39, wherein said communication between said first and second node of said network comprises utilizing a DataSource component further adapted to setup a session and handshake or negotiate conditional access parameters.

43. (Previously presented) The apparatus of Claim 39, wherein said communication between said first and second node of said network comprises utilizing a DataSource component further adapted to specify the channel on which said content will be delivered.

44. (Previously presented) The apparatus of Claim 37, wherein said communication between said first and second node of said network comprises providing messaging in support of a plurality of functional modes; and wherein said controlling comprises providing said plurality of functional modes.

45. (Previously presented) The apparatus of Claim 37, wherein said processing content delivered to said second node of said network further comprises utilizing a player component adapted to perform said processing.

46. (Previously presented) Customer premises equipment (CPE) adapted for operation within a content based network offering on-demand services according to at least one network-specific protocol, said CPE comprising:

a storage device; and

a digital processor operatively coupled to said storage device, said digital processor adapted to run at least one software application stored on said storage device, said software application comprising a plurality of components adapted to, when executed on said processor:

5           communicate between said CPE and another entity of said network;  
          process the content delivered to said CPE; and  
          enable a user of said CPE to control, via a user interface, playback of said content according to said network-specific protocol;

          wherein said software application is adapted to be utilized by more than one application  
10   having permissions from an OCAP monitor and simultaneously running on said CPE.

47.   (Previously presented) The CPE of Claim 46, wherein said CPE comprises a digital settop box (DSTB) with Java-based middleware, and said at least one software application comprises at least one class and at least one interface disposed within the application directory hierarchy.

15       48.   (Previously presented) The CPE of Claim 47, wherein said CPE is adapted to: receive said at least one application over said network; and  
          subsequent to said receipt, launch said at least one application to configure at least one path to said at least one component.

          49.   (Previously presented) The CPE of Claim 48, wherein said CPE further  
20   comprises a plurality of applications, said plurality of other applications being enabled to access said at least one component via at least one of said at least one configured paths.

50.   (Currently amended) A method of developing the specific protocol useful for delivery of content from a first node of a network to a second node thereof via a server entity of said first node, the method comprising:

25       developing a plurality of media interface components adapted to implement a network-specific protocol;

          developing a configured application by disposing said plurality of components within a software application; and

          developing at least one path to said media interface components, said path being  
30   accessible only to authorized entities;

wherein said at least one path and said media interface components cooperating to provide network specific on-demand services.

51. (Previously presented) The method of Claim 50, wherein said configured application is run on a CPE.

5 52. (Previously presented) The method of Claim 51, wherein said act of developing a plurality of media interface components comprises developing a plurality of Java Media Framework components.

53. (Previously presented) The method of Claim 52, wherein said act of disposing said plurality of media interface components comprises disposing a plurality of classes and  
10 interfaces within the directory hierarchy structure of said application.

54. (Previously presented) The method of Claim 51, wherein said act of disposing said plurality of media interface components comprises:

providing said components to said CPE;

providing said software application to said CPE; and

15 assembling said configured application at said CPE using at least said components and said software application.

55. (Previously Presented) The CPE of Claim 21, further comprising a user interface, said user interface adapted to enable a user to direct said sending of said at least one message.

20 56. (Previously Presented) The CPE of Claim 21, wherein said act of sending said message causing said corresponding function to be executed.

57. (Previously Presented) The head-end apparatus of Claim 34, wherein said first component comprises a Java DataSource.

58. (Currently amended) The head-end apparatus of Claim 57, wherein said second component comprises a Java MediaHandler.

25 59. (Previously Presented) The head-end apparatus of Claim 58, wherein said third component comprises a controller adapted to access said first component to cause said at least one message to be sent between said head-end and said CPE, said at least one message causing at least one corresponding functional mode to be invoked.

60. (Previously Presented) The head-end apparatus of Claim 34, wherein said act of developing a second component further comprises developing a player component adapted for implementing said second component.

61. (Currently amended) A storage apparatus comprising a computer readable medium, said medium comprising at least one computer program having a plurality of instructions which, when executed by a computer, implement a pre-existing and network-specific protocol, the at least one computer program comprising:

a Java Media Framework (JMF) having at least a Java data source ~~first module~~ for upstream and downstream communication between a CPE and a headend entity of an HFC network, said JMF ~~first module~~ having at least one extension thereof;

a ~~second module~~ Java media handler for processing content delivered to said headend entity of said HFC network; and

a ~~third~~ controller module for controlling at least one of said communication and said processing, said ~~third~~ controller module being adapted to understand said extension;

wherein said controlling comprises enabling said content to be presented utilizing one or more functional trick modes available to said network-specific protocol based at least in part on said extension; and

wherein one or more remote applications are able to call and set commit prefixes to said JMF.

62. – 64. (Cancelled)

65. (Currently amended) The ~~storage~~ apparatus of Claim 61, wherein said controlling comprises causing at least one message to be sent between said headend entity and said CPE, said at least one message causing at least one corresponding function to be executed.

66. (Canceled)

67. (Previously presented) The apparatus of Claim 66, wherein said controlling comprises utilizing a controller adapted to cause at least one message to be sent between said headend entity and said CPE, said at least one message causing at least one corresponding function to be executed.

68. (Previously presented) The apparatus of Claim 61, wherein:



said communication between said CPE and said headend entity of said network comprises providing messaging in support of said one or more functional trick modes; and said controlling comprises providing said one or more functional trick modes.

5 69. (Previously presented) The apparatus of Claim 61, wherein said processing content delivered to said headend entity of said network further comprises utilizing a player component adapted to perform said processing.

70. (New) The apparatus of Claim 61, wherein said Java data source comprises a Java DataSource object, and said Java media handler comprises a Java MediaHandler object.

10 71. (New) A storage apparatus comprising a computer readable medium, said medium comprising at least one computer program which, when executed by a computerized apparatus, implement an MSO-specific protocol, the protocol comprising at least one persistent Java Media Framework (JMF) extension to the capabilities of the MSO-specific protocol, the at least one computer program comprising:

15 a first Java-based module for communication between a first and second node of said network, said first module being configured to enable set up of an on-demand content delivery session between the first and second nodes;

a second Java-based module for playing content delivered to said second node of said network; and

20 a third module for controlling at least one of said communication and said playing, said third module being adapted to understand said persistent JMF extension, said act of controlling comprising causing transmission of at least one message between said second node and said first node, said at least one message causing said content to be presented according to one or more requested on-demand trick modes available to said MSO-specific protocol based at least in part on said persistent JMF extension.

25 72. (New) The storage apparatus of Claim 71, wherein said second node comprises a consumer premises equipment (CPE), and said first node comprises an on-demand server.